



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,356	02/17/2004	Jian-Qiang Fan	077376.0129	9219
21003	7590	11/14/2007		
BAKER BOTTS L.L.P. 30 ROCKEFELLER PLAZA 44TH FLOOR NEW YORK, NY 10112-4498			EXAMINER SCHNIZER, RICHARD A	
			ART UNIT 1635	PAPER NUMBER
			NOTIFICATION DATE 11/14/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DLNYDOCKET@BAKERBOTTSCOM

Office Action Summary	Application No. 10/781,356	Applicant(s) FAN, JIAN-QIANG	
	Examiner Richard Schnizer, Ph. D.	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 6,10-13,21,25-28,33 and 37-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-9,14-20,22-24,29-32 and 34-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/17/07 has been entered.

Claims 1-40 remain pending.

Claims 6, 10-13, 21, 25-28, 33, and 37-40 stand withdrawn.

Claims 1-5, 7-9, 14-20, 22-24, 29-32, and 34-36 are under consideration in this Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 7-9, 14-20, 22-24, 29-32, and 34-36, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-5, 7-9, 14-20, 22-24, 29-32, and 34-36 are indefinite because they recite "the individual's endogenous protein" without antecedent basis. There is no

nexus between the recited "recombinant protein" and "the individual's endogenous protein".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-9, 14-17, 19, 20, 22-24, 29-32, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yew et al (US Patent 6,066,626) taken with Fan et al (US Patent 6,274,597) and Handa et al (Dermatology 200: 262-265, 2000).

Yew taught methods of providing biologically active human alpha galactosidase-A to cells of an individual having a deficiency of that enzyme (Fabry's disease) by administration into cells of the individual an adenoviral expression construct encoding alpha galactosidase. See claim 8. The cells may be in vivo (see claims) or ex vivo (see column 9, lines 10-14).

Yew did not teach an active site-specific chaperone. Yew also does not explicitly teach a Fabry's disease individual that does not express a mutant protein that is deficient due to defective folding or processing in the endoplasmic reticulum.

Fan '597 taught methods of increasing the activity of a mutant form of lysosomal alpha galactosidase-A in mammalian cells, and treating Fabry's disease in an

individual, comprising administering an effective amount of 1-deoxygalactonojirimycin.

See claims 1-7.

Handa taught a case of symptomatic heterozygous female Fabry's disease without detectable mutation in the alpha-galactosidase gene. See abstract.

It would have been obvious to one of ordinary skill in the art at the time of the invention to treat an individual with Fabry's disease by administering both the expression construct of Yew, and 1-deoxygalactonojirimycin. One would have been motivated to augment the method of Yew by combining it with the method of Fan above because, in addition to providing the wild type protein of Yew, one would have expected to obtain activity from the patient's endogenous mutant protein as a result of the method of Fan, thereby providing more alpha galactosidase-A activity than would have been obtainable by the separate methods. It would have been similarly obvious to perform the method on the patient disclosed by Handa, who does not express a mutant alpha galactosidase A gene.

Thus the invention as a whole was prima facie obvious.

Note that the claims read on methods in which alpha galactosidase deficiency is due to a mutation in a different protein, such as a chaperone that is required for alpha galactosidase folding (see Handa at sentence bridging pages 264 and 265).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yew, Fan, and Handa as applied to claims 1-5, 7-9, 14-17, 19, 20, 22-24, 29-32, and 34-36 above, and further in view of Hendricks et al (Blood 96 (11 part 1): 845a, 2000).

The teachings of Yew, Fan, and Handa are discussed above, and can be combined to render obvious methods of increasing the level of expression of alpha galactosidase in an individual by administering to the individual cells comprising an alpha galactosidase expression vector and 1-deoxygalactonojirimycin, wherein the individual does not express a mutant alpha galactosidase protein.

Yew, Fan, and Handa did not teach administration of human primary cells or mesenchymal stem cells comprising an alpha galactosidase expression vector.

Hendricks taught a method in which human mesenchymal stem cells were transduced with a retroviral expression vector encoding alpha galactosidase A, and then were implanted into mice where they secreted high levels of alpha galactosidase A suggesting their usefulness as gene delivery vehicles for the treatment of Fabry's disease. See abstract.

It would have been obvious to one of ordinary skill in the art at the time of the invention to administer human mesenchymal stem cells comprising an alpha galactosidase A expression vector to the Patient of Handa for the purpose of increasing the expression level of alpha galactosidase A in the individual. One would have been motivated to do so because Hendricks suggests that human mesenchymal stem cells transduced to express alpha galactosidase A would be useful as gene delivery vehicles for the treatment of Fabry's disease.

Thus the invention as a whole was prima facie obvious.

Conclusion

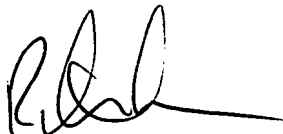
No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner(s) should be directed to Richard Schnizer, whose telephone number is 571-272-0762. The examiner can normally be reached Monday through Friday between the hours of 6:00 AM and 3:30. The examiner is off on alternate Fridays, but is sometimes in the office anyway.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, J. Douglas Schultz, can be reached at (571) 272-0763. The official central fax number is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



Richard Schnizer, Ph.D.
Primary Examiner
Art Unit 1635